

Appl. No. : **10/035,836**
Filed : **December 21, 2001**

REMARKS

Claims 70-78 and 80-86 are currently pending in the instant application. Claims 1-69 and 79 are canceled without prejudice or disclaimer. Claims 83-86 are newly added. Claims 70, 78 and 82 are amended. The amendment to Claim 70 is supported by Figure 5, the specification at page 16, lines 15 to 16 and elsewhere throughout the specification. The amendment to Claim 78 is supported by Figures 14-17, the specification at page 4, lines 17-20 and elsewhere throughout the specification. Claim 82 has been amended to correct a typographical error. New claim 83 is supported by Figure 14, the specification at page 4, lines 17-31 and elsewhere throughout the specification. New claims 84-86 are supported by Figures 19-20 and elsewhere throughout the specification. Accordingly, no new matter has been added to the instant application.

Objection to Claim 82

The Examiner objects to Claim 82 as being dependent upon a rejected base claim, but states that it would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims (*see*, page 21 of the Office Action mailed April 13, 2005). Applicants would like to point out that previously presented Claim 82 is now rewritten as Claim 84. New Claim 84 is an independent claim that includes each of the limitations that were included in Claims 78 and 82 prior to this amendment. Claims 85 and 86 are dependent on Claim 84. Accordingly, Applicants respectfully submit that each of new claims 84-86 is allowable.

Rejection of Claims 78, 80 and 81 Under 35 U.S.C. § 102(e)

Claims 78, 80 and 81 are rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by U.S. Patent No. 4,390,499 ("Curtis et al."). According to the Office Action mailed April 13, 2005, Curtis et al. allegedly disclose a device comprising a circular substrate, a plurality of flow channels, a break-away wall, and DNA immobilized on an active layer (*see*, page 6 of the Office Action mailed April 13, 2005). In the Advisory Action mailed October 17, 2005, the Examiner further asserts that Curtis et al. disclose introduction of blood serum components onto the device whereby components of the serum are immobilized. The Examiner then concludes that the

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immobilized DNA element recited in Claim 78 encompasses the blood serum introduction of Curtis et al.

Applicants respectfully maintain that previously presented Claims 78, 80 and 81 are not anticipated by Curtis et al. However, in order to expedite the allowance of the instant application, Applicants have amended claim 78 to recite the limitation that the bio-disc comprises “DNA chemically bound to an active layer.” Applicants respectfully submit that amended Claim 78 is allowable at least because Curtis et al. do not disclose DNA chemically bound to an active layer. Because Claims 80 and 81 depend from currently amended Claim 78, Curtis et al. do not anticipate any of these claims.

In view of the foregoing remarks, Applicants respectfully request that the Examiner withdraw the rejection of Claims 78, 80 and 81 under 35 U.S.C. § 102(e).

Rejection of Claims 70-73 and 76 Under 35 U.S.C. § 103(a)

Claims 70-73 and 76 are rejected under 35 U.S.C. § 103(a) as allegedly obvious over U.S. Patent No. 5,922,617 (“Wang et al.”) in view of U.S. Patent No. 5,310,523 (“Smethers et al.”). With regard to the rejection of Claim 70, the Office Action mailed April 13, 2005 alleges that Wang et al. disclose a device having a circular substrate, a reflective layer, and a plurality of target zones disposed in the reflective layer. The Office Action further states that Figure 7 of Wang et al. allegedly suggests interrogation as claimed (*see*, pages 11 and 12 of the Office Action). The Office Action notes that Wang et al. do not disclose the claimed functionality of an active layer associated with a reflective layer and target zones wherein the active layer comprises immobilized capture-DNA positioned to be contacted by an interrogation beam as it passes through the target zones.

In a Response dated August 15, 2005, Applicants argued as discussed below, that the device of Wang et al. does not comprise a reflective layer having target zones which allow passage of an interrogation beam such that the interrogation beam then contacts the DNA molecules present on an “adjacent active layer” (*see* Applicants’ Response at page 6).

In the Advisory Action mailed October 17, 2005, the Examiner asserted that Claim 70 did not limit the structure to having the active layer adjacent the reflective layer. As such, the Examiner asserted that Applicants’ argument was not commensurate in scope with the claims.

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Applicants respectfully submit that previously presented Claims 70-73 and 76 are not obvious over Wang et al., either alone or in view of Smethers et al., because neither of these references, alone or in combination, disclose or suggest all the limitations of Claim 70. However, in order to expedite the allowance of the instant application, Applicants have amended Claim 70 to now recite that the bio-disc comprises “an active layer adjacent to said reflective layer.”

Wang et al. do not disclose or suggest a reflective layer adjacent to an active layer which is accessible by an interrogation beam via target zones. In particular, Applicants note that the device of Wang et al. does not comprise a reflective layer having target zones that allow passage of an interrogation beam such that the interrogation beam then contacts the DNA molecules present on an active layer adjacent to the reflective layer. The cited figures of Wang et al. (Figures 5-7) clearly show that the device does not include a reflective layer adjacent to an active layer, wherein the active layer is accessible through target zones. The text cited by the Examiner at column 10, line 20 to column 11, line 9 does not include a description of such a device. Accordingly, Wang et al. do not disclose or suggest all the limitations of independent Claim 70.

In view of the foregoing remarks, Applicants submit that independent Claim 70 would not be obvious to one of ordinary skill in the art at the time the invention was made. Claims 71-73 and 76 depend from Claim 70. As such, none of Claims 70-73 and 76 are obvious over Wang et al. For this reason, Applicants respectfully request that this obviousness rejection be withdrawn.

With regard to Claims 71-72, the Office Action mailed April 13, 2005 states that Wang et al. do not teach a membrane comprising a fluidic circuit associated with the active layer and immobilized DNA. According to the Office Action, Smethers et al. cure this deficiency by disclosing a channeled membrane, which in combination with Wang et al., allegedly make Claims 71-72 obvious to one of ordinary skill in the art. However, as discussed above, Wang et al. do not disclose or suggest a reflective layer adjacent to an active layer which is accessible by an interrogation beam via target zones. The combination of Wang et al. with Smethers et al. does not cure this deficiency. Accordingly, Claims 71 and 72 are not obvious in view of the cited art. For this reason, Applicants respectfully request withdrawal of this rejection.

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With regard to Claims 73 and 76, the Office Action mailed April 13, 2005 states that Smethers et al. teach an adhesive membrane (i.e. elastomeric seals), and a device further comprising a cap providing an inlet port. However, as discussed above, Wang et al. do not disclose or suggest a reflective layer adjacent to an active layer that is accessible by an interrogation beam via target zones. Therefore, the combination of Wang et al. with Smethers et al. does not disclose or suggest the limitations recited in Claims 73 and 76. Accordingly, Claims 73 and 76 are not obvious in view of the cited art. For this reason, Applicants respectfully request withdrawal of this rejection.

Rejection of Claims 74 and 75 Under 35 U.S.C. § 103

Claims 74 and 75 have been rejected under 35 U.S.C. § 103(a) for allegedly being obvious over Wang et al. in view of Smethers et al. and in further view of Besemer et al. However, as discussed above, none of these references cure the deficiency in Wang et al. since neither Smethers nor Besemer disclose or suggest a reflective layer adjacent to an active layer that is accessible by an interrogation beam via target zones.

In view of Applicants' discussion set forth above regarding Claims 70-73 and 76, Applicants respectfully request that the Examiner withdraw the rejection of Claims 74 and 75.

Claim 77

Applicants were unable to discern any specific treatment of Claim 77 in the final Office Action mailed April 13, 2005 or the Advisory Action mailed October 17, 2005. As such, Applicants have do not specifically address the patentability of the subject matter set out in this claim other than to note that Claim 77 depends from independent Claim 70.

CONCLUSION

Applicants believe that all outstanding issues in this case have been resolved and that the present claims are in condition for allowance. Nevertheless, if any undeveloped issues remain or if any issues require clarification, the Examiner is invited to contact the undersigned at the telephone number provided below in order to expedite the resolution of such issues.

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Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

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Dated: December 7, 2005

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